## ABSTRACT OF THE DISCLOSURE

In the methods of the present invention, the change in absorbance of an obtusifoliol 14α-demethylase (OBT-DM) enzyme upon binding of an inhibitor is used to advantage for the identification of inhibitors of OBT-DM activity. Rather than measuring the absorbance of an OBT-DM/inhibitor complex over a spectrum of wavelengths as described previously, the present invention discloses methods for identifying type II inhibitors of OBT-DM by monitoring the absorbance only at 413nm and 432nm. The methods of the invention enable the concurrent testing of multiple compounds using a high throughput format such as with 96- or 384-well plates. The OBT-DM polypeptides of the invention include plant, fungal and human OBT-DM polypeptides, and in particular, *Arabidopsis thaliana* OBT-DM polypeptide